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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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06/19/2001

Kenkichi Hayashi

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04/07/2004

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EXAMINER

PATEL, KANJIBHAI B

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 04/07/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,217

Applicant(s)

HAYASHI, KENKICHI

Examiner

Kanji Patel

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Drawings filed on 6/19/01 have been approved by the examiner.

Specification

3. The disclosure is objected to because of the following informalities:

Page 6, paragraph 0016, line 3, change "14" to -142--.

Page 14, paragraph 0041, line 1, change "34" to -34c--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by

Hibbard (US 5,382,976).

For claim 1, Hibbard discloses an image signal processing device for executing signal processing on image data representative of an input image (Figs. 1-2) said device comprising:

a signal processing circuit (digital signal processor 22 in figure 1 acts as a signal processing circuit) for executing signal processing on the image data (image data are provided by the input section 2 in figure 1; image buffer 18 stores the image data) for correction (36 and 38 in figure 2) and recording (memory card 24 in figure 1 provides recording), and executing noise reduction (column 1 line 66 to column 2 line 2) on individual image data in accordance with at least one of image inputting conditions and a pixel level (input section 2 provides inputting conditions and signal level as explained in column 2 line 64 to column 3 line 45);

said signal processing circuit (figure 2) comprising:

a threshold generating circuit (column 5, lines 18-56) for generating a threshold by taking account of at least one of the image inputting conditions (input section 2) and the pixel level; and

a noise reducing circuit (figure 2 acts as a noise reduction circuit by providing interpolation missing green or luminance pixel or signal level; see column 4 line 41 to column 5 line 56; also see figures 4A-4D, the characteristic Bayer block with respect to one pixel (circle) that is to be interpolated) for producing, during the noise reduction, a difference in level (38 in figure 2) between subject pixel data whose noise is to be detected and a mean value (at least 44 in figure 2 provides mean value) of said subject pixel data and pixel data around said subject pixel data, and selecting either one of said subject pixel data and said mean value in accordance with said difference and the threshold (column 5, lines 30-56).

For claim 2, Hibbard discloses the device in accordance with claim 1, wherein said threshold generating circuit comprises:

a condition collecting circuit for collecting various conditions for determining the threshold (column 5, lines 30-56); and

a calculating circuit for calculating the threshold in accordance with the conditions collected (column 5, lines 19-27).

For claim 3, Hibbard discloses the device in accordance with claim 2, wherein said threshold generating circuit further comprises a threshold correcting circuit for correcting the threshold in accordance with a level of the subject pixel data (column 5, lines 19-27; threshold level is adjustable).

For claim 4, Hibbard discloses the device in accordance with claim 3, wherein said condition collecting circuit collects at least one of pickup sensitivity, an exposing condition, a shooting mode, sharpness, a kind of a light source, an operation, and a display magnification (column 2 line 62 to column 3 line 7; column 4, lines 26-40).

For claim 5, Hibbard discloses the device in accordance with claim 1, wherein said noise reducing circuit comprises:

a difference calculating circuit (column 4 line 41 to column 5 line 17) for calculating a difference in level between the subject pixel data and the pixel data around said subject pixel data;

a mean value calculating circuit (column 5 lines 3-17) for calculating a mean value of the subject pixel data and the pixel data around said subject pixel data;

a comparing circuit (column 5, lines 18-27) for comparing the difference and the threshold to thereby determine which of the subject pixel data and the mean value should be used; and

a switch for selecting either one of the subject pixel data and the mean value in accordance with a result of comparison output from said comparing circuit (column 5, lines 30-56).

For claim 6, Hibbard discloses the device in accordance with claim 5, wherein said mean value calculating circuit multiplies each pixel data around the subject pixel data by a particular weighting coefficient on the basis of a position of said pixel data to thereby calculate the mean value (column 5, lines 3-17; column 6, lines 1-30).

For claim 7, Hibbard discloses a method of processing image data representative of an input image to thereby generate an image (figures 1-2), comprising:

a first step of collecting image inputting conditions under which the image is input (input section 2 in figure 1 provides inputting conditions; see column 2 line 62 to column 3 line 45);

a second step of calculating a threshold for determining (column 5, lines 18-56), based on the image inputting conditions, whether or not to use subject pixel data to which noise reduction is to be applied;

a third step of calculating a mean value (column 5, lines 3-17) of a level of the subject pixel data and levels of pixel data around said subject pixel;

a fourth step of producing a difference (column 4 line 41 to column 5 line 17) between the level of the subject pixel data and the mean value; and

a fifth step of comparing (column 5, lines 18-27) the difference and the threshold to thereby select either one of the subject pixel data and the mean value.

For claim 8, see the rejection of at least claim 3 above.

For claims 9-10, see the rejection of at least claim 4 above.

For claim 11, see the rejection of at least claim 6 above.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kawabe (US 6,654,510 B1).

For claim 1, Kawabe discloses an image signal processing device for executing signal processing on image data representative of an input image (Fig. 2), said device comprising:

a signal processing circuit (image processing section 70 in figure 2 corresponds to a signal processing circuit) for executing signal processing on the image data (image data are provided by the input section 80 in figure 2) for correction (figure 3; 81 in figure 2) and recording (section 15 provides recording), and executing noise reduction on

individual image data in accordance with at least one of image inputting conditions and a pixel level (column 14 line 45 to column 15 line 12);

said signal processing circuit (70) comprising:

a threshold generating circuit (Tables 1-8) for generating a threshold by taking account of at least one of the image inputting conditions and the pixel level; and

a noise reducing circuit for producing, during the noise reduction, a difference in level between subject pixel data whose noise is to be detected and a mean value of said subject pixel data and pixel data around said subject pixel data, and selecting either one of said subject pixel data and said mean value in accordance with said difference and the threshold (column 23 line 55 to column 24 line 46).

For claim 2, Kawabe discloses the device in accordance with claim 1, wherein said threshold generating circuit comprises:

a condition collecting circuit for collecting various conditions for determining the threshold (column 24, lines 40-46); and

a calculating circuit for calculating the threshold in accordance with the conditions collected (tables 1-8).

For claim 3, Kawabe discloses the device in accordance with claim 2, wherein said threshold generating circuit (Tables 1-8) further comprises a threshold correcting circuit for correcting the threshold in accordance with a level of the subject pixel data.

For claim 4, Kawabe discloses the device in accordance with claim 3, wherein said condition collecting circuit collects at least one of pickup sensitivity, an exposing

condition, a shooting mode, sharpness, a kind of a light source, an operation, and a display magnification (column 14 line 45 to column 15 line 12).

For claim 5, Kawabe discloses the device in accordance with claim 1, wherein said noise reducing circuit comprises:

- a difference calculating circuit (column 24, lines 6-40) for calculating a difference in level between the subject pixel data and the pixel data around said subject pixel data;

- a mean value calculating circuit (column 24, lines 6-40) for calculating a mean value of the subject pixel data and the pixel data around said subject pixel data;

- a comparing circuit (column 23 line 63 to column 24 line 40) for comparing the difference and the threshold to thereby determine which of the subject pixel data and the mean value should be used; and

- a switch for selecting either one of the subject pixel data and the mean value in accordance with a result of comparison output from said comparing circuit (column 24, lines 6-40).

For claim 6, Kawabe discloses the device in accordance with claim 5, wherein said mean value calculating circuit multiplies each pixel data around the subject pixel data by a particular weighting coefficient on the basis of a position of said pixel data to thereby calculate the mean value (column 21 line 65 to column 22 line 18; in calculating interpolation, the matrix elements provide coefficients).

For claim 7, Kawabe discloses a method of processing image data representative of an input image to thereby generate an image (column 13 line 66 to column 14 line 11), comprising:

a first step of collecting image inputting conditions under which the image is input (column 14 line 45 to column 14 line 12);

a second step of calculating a threshold for determining (Tables 1-8), based on the image inputting conditions, whether or not to use subject pixel data to which noise reduction is to be applied;

a third step of calculating a mean value (column 22, lines 54-62) of a level of the subject pixel data and levels of pixel data around said subject pixel;

a fourth step of producing a difference (column 24, lines 6-40) between the level of the subject pixel data and the mean value; and

a fifth step of comparing (column 24, lines 1-40) the difference and the threshold to thereby select either one of the subject pixel data and the mean value.

For claim 8, see the rejection of at least claim 3 above.

For claims 9-10, see the rejection of at least claim 4 above.

For claim 11, see the rejection of at least claim 6 above.

Other prior art cited

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tamura (US 5,999,215) discloses an image pickup apparatus.

Cornuejols (US 5,638,119) discloses a device for increasing the dynamic range of a camera.

Suda (US 5,842,059) discloses an automatic focus adjusting device.

Classen et al. (US 6,574,363 B1) disclose a method for color detection in video images.

Mann (US 5,828,793) discloses a method and apparatus producing digital images having extended dynamic ranges.

Hammilton, Jr. et al. (US 5,596,367) disclose an averaging green values for green photosites in electronic cameras.

Kaji et al. (US 4,754,323) disclose a color image pickup device in which the level of a sequential color-difference signal is controlled on the basis of the level of the luminance signal.

Contact information

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Kanji Patel** whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 6:30 p.m. Friday off. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, **Mehta, Bhavesh**, can be reached on (703) 308-5246.

Any inquiry of general nature or relating to the status of this application should be directed to the **Group receptionist** whose telephone number is (703) 305-3800. The **Fax number** for this group is (703) 872-9306.



Kanji Patel
Patent Examiner
Group Art Unit 2625
April 2, 2004